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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/950,081	09/12/2001	Hiroya Okumura	2001-1255A	1556

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EXAMINER
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RUTHKOSKY, MARK

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/950,081	<b>Applicant(s)</b> OKUMURA ET AL.	
	<b>Examiner</b> Mark Ruthkosky	<b>Art Unit</b> 1745	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 January 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims use the phrase "pressure kneaded," which is not defined by the specification to have a clear meaning. Kneading a material inherently includes adding a pressure to the material. As pressure is applied in the process of kneading a material, the limitation will be read as "kneading." The specification also teaches kneading under pressure, but the specification states that the pressure is not critical to the invention. The applicant argues that the prior art does not teach this type of kneading, however, the claim offers no guidance with regard to what pressure comprises pressure kneading. The pressure may include room temperature.

Claim 10 includes a limitation that the electroconductive agent includes carbon powder. The use of the language, "consisting essentially of" does not permit adding additional material to the resin composition, and as such, claim 10 must read that the agent consists essentially of carbon powder.

Claim 11 includes a limitation that the resin composition consists essentially of a vinyl ester series resin and a monomer. The claim then limits the amount of monomer to be 0 in the ratio. If the composition is required to have a monomer as defined, then the amount of the material must be greater than 0.

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Claim 13 adds a low-profile agent to the composition of claim 1, however, claim 1 states that the material consists essentially of a conductive agent and a thermosetting resin system which is defined on page 5, line 23 of the specification. The use of the language, "consisting essentially of" does not permit adding additional material to the resin composition and is therefore indefinite.

### ***Specification***

The amendment filed 1/5/2004 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material that is not supported by the original disclosure is as follows: Claim 1 states that a resin composition "consists essentially of" an electroconductive agent and a resin system. There is no support in the specification for a composition that consists essentially of an electroconductive agent and a resin system. The resin of the instant specification includes various components added to the system as shown throughout the specification. The specification does not have support for limiting the composition so that it does not include other materials in the composition.

Applicant is required to cancel the new matter in the reply to this Office Action.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 9-10 and 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Emanuelson et al. (4,301,222.)

The instant claims are to a resin composition for a separator of a fuel cell, which consists essentially of an electroconductive agent and a radical-polymerizable thermosetting resin system.

Emanuelson et al. (4,301,222) teaches a resin composition for a separator of a fuel cell, which consists essentially of an electroconductive agent and a radical-polymerizable, thermosetting resin system (see claim 1.) The materials are mixed and molded to form a fuel cell separator plate (col. 9, line 15.) It is noted that mixing inherently involves applying pressure to the material and that kneading and mixing are equivalent processes. Further, the pressure is not noted to change from room pressure. Thus, the claims are anticipated.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-19 are rejected under 35 U.S.C. 103(a) as being obvious over Butler (US 6,251,308.) in view of Emanuelson et al. (4,301,222.)

Butler (US 6,251,308) teaches a resin composition for a separator of a fuel cell comprising an electroconductive agent and a radical-polymerizable thermosetting resin system (see column 4.) The electroconductive agent includes carbonaceous materials such as graphite in

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various concentrations (lines 37-65.) The radical-polymerizable thermosetting resin system includes a vinyl-ester series resin in which methacrylate is added to a bisphenol A resin (lines 15-40.) A radical-polymerizable dilutant of styrene is added in a specific range (lines 25-40.) The double bond equivalent and glass transition temperature of the composition are inherent features of the compound. Low-profile agents are noted throughout the reference (including the various compounds in columns 5 and 6.) The agents are added in the range of 0.1 to 30 parts (wt.) relative to the radical-polymerizable thermosetting resin system. An example includes polyvinyl acetate (col. 6, lines 37-end.) Molding and mixing the materials are noted in col. 6, line 60 to col. 7. The reference does not teach the composition to consist essentially of an electroconductive agent and a radical-polymerizable thermosetting resin system.

Emanuelson et al. (4,301,222) teaches a resin composition for a separator of a fuel cell, which consists of an electroconductive agent and a radical-polymerizable thermosetting resin system (see claim 1.) The materials are mixed and molded to form a fuel cell separator plate (col. 9, line 15.) It would be obvious to one of ordinary skill in the art at the time the invention was made that the mixture of the electroconductive agent and radical-polymerizable thermosetting resin system of Butler (US 6,251,308) forms a separator plate as the polymer binds the conductive material to form a molded plate. The additives of Butler are used to improve the properties of the plate and the methods of forming the plate, however one of ordinary skill in the art would recognize from the teachings of the Butler reference to use an electroconductive agent and a radical-polymerizable thermosetting resin system to form a fuel cell separator plate.

Butler (US 6,251,308) does not teach a process wherein the resin composition is kneaded with a pressure kneader and molding the kneaded material or wherein the pressure in the

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pressure kneader is in the range of  $0.1 \times 10^5$  to  $10 \times 10^5$ . It is noted that the pressure includes 1 atmosphere, which is considered standard room pressure, and variants of both greater and less than 1 atmosphere. Butler teaches that the resin may be "mixed using a variety or mixing conditions including either continuous or batch and using a variety of known mixing equipment." Molding the material is described at various pressures. It would be obvious to one of ordinary skill in the art at the time the invention was made to knead the resin composition with a pressure kneader as pressure kneading equipment is well known in the art and the reference teaches using a commonly known mixing equipment will provide proper mixing of the material. The pressure of the mixing will further be obvious to one of ordinary skill in the art as one of ordinary skill in the art would understand the mixing of such materials and would determine the optimum mixing parameters by routine experimentation. Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. The artisan would have found the claimed invention to be obvious in light of the teachings of the reference.

The artisan would have found the claimed invention to be obvious in light of the teachings of the references.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Examiner Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mark Ruthkosky

Primary Patent Examiner

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*Mark Ruthkosky*  
4/1/04